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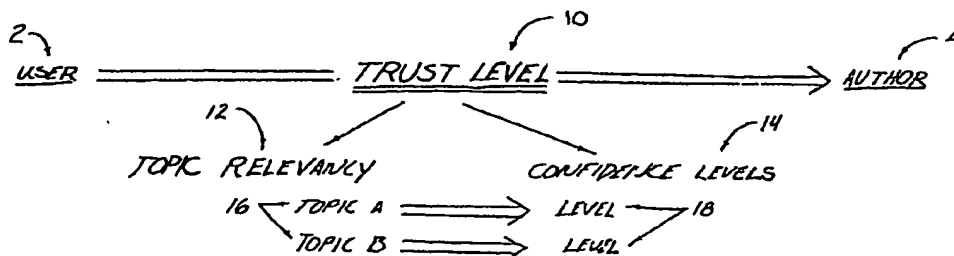
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(54) Title: METHODS AND SYSTEMS FOR PRESENTING INFORMATION IN A DISTRIBUTED COMPUTING ENVIRONMENT



(57) Abstract: Disclosed is an inventive method for organizing content from a common pool of content data based on a users level of trust for authors of the content data. The method includes maintaining a common pool database of content, with each piece of content having an author. In addition, a user database is maintained which includes user trust data. The user trust data includes user trust levels for the authors of content in the common pool database. Finally, a new content database and content presentation structure are generated based on the user trust data of the user. Advantageously, content can be structured to more particularly suit the interest of an individual user.

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## METHODS AND SYSTEMS FOR PRESENTING INFORMATION IN A DISTRIBUTED COMPUTING ENVIRONMENT

### 5 BACKGROUND OF THE INVENTION

The World Wide Web of the Internet is the most successful distributed application in the history of computing. In the Web environment, client machines effect transactions to Web servers using the Hypertext Transfer Protocol (HTTP), which is a known Application  
10 protocol providing users access to files (e.g., text, graphics, images, sound, video, etc.) using a standard page description language known as Hypertext Markup Language (HTML). HTML provides basic document formatting and allows the developer to specify "links" to other servers and files. In the Internet paradigm, a network path to a server is identified by a so-called Uniform Resource Locator (URL) having a special syntax for  
15 defining a network connection. Use of an HTML-compatible browser (e.g., Netscape Navigator) at a client machine involves specification of a link via the URL. In response, the client makes a request to the server identified in the link and receives in return a document formatted according to HTML.

In this environment an enormous amount of information is available to a user. First  
20 because of the sheer size of the Web environment, and second because of the immense amount of individuals having access to the Web environment. These individuals currently author a tremendous amount of content for the Web concerning a vast number of topics.

To navigate all this information, users of the Web typically use search engines. A search engine allows a Web user to enter key words which define the content they desire.  
25 The search engine then utilizes these key words to find matches in documents on the Web, and then presents these content matches to the user, typically in the form of a list of content. Another strategy for search engines is a hierarchical tree of content nodes in which a user can traverse various branches and nodes to find the desired content. For example, the first level of a hierarchical tree may present various high level topics, such as  
30 cars or homes. The user may find the content they are looking for at this general level, or they may traverse down the hierarchy to a more specific level, such as exploring the cars topic which may contain various makes of cars, such as Ford or Ferrari. If the user does not

find the content they desire at this level, the user may continue down the hierarchy to more specific topics until they obtain the content they are looking for.

One problem with both of these search strategies is that the content provided to the user includes no correlation to the an count of trust a user may have for the authors of the content provided. Although the information may be presented to the user based on the amount of key words found in the content, or based on the number of times a piece of content gets accessed by others, the prior art does not allow content to be based on the trust levels of the individual user. The result is that the user has no way of knowing whether they will personally appreciate the content presented to them. Even though a piece of content includes a high percentage of key words used in a search, or is frequently accessed by others, that does not mean a particular individual will find the content desirable. On the other hand, if the particular user trusts an author for providing a certain type of information, it is highly likely the user will find other content authored by that author very desirable.

What is needed is a method for providing content to a user which has a high likelihood it will be appreciated by a particular user. The method would need to keep track of individual users to provide content structured based on the individual user preferences. In addition, the method would need to be able to present content to a user in such a fashion as to allow the user to immediately identify content having a high likelihood of being desirable to the user.

#### SUMMARY OF THE INVENTION

The present invention fills these needs by providing a computer implemented method that organizes content for a particular user based on the particular user's Trust Levels for various authors of content. In one embodiment, the invention relates to a method for organizing a pool of content for a user. The method comprises maintaining a common pool database which includes a plurality of content data, with each piece of content having at least one author associated with it. The method further includes maintaining a user database which includes user trust data. The user trust data includes user Trust Levels for authors of content included in the common pool database. Next, a new content database and content presentation structure are generated for a user based on the user trust data of the user.

In another embodiment, a distributed computing system for organizing a pool of content is disclosed. In this embodiment, a common pool data base is used to store a plurality of content data with each piece of content having at least one author associated therewith. The system further includes a user database for storing user trust data. The user trust data includes user Trust Levels for authors of content included in the common pool database. Finally, the system includes a system process having logic for generating a content database and content presentation structure for a user based on the user trust data of the user.

A computer program for organizing a pool of content for a user is disclosed in yet another embodiment of the present invention. The computer program includes a code segment that maintains a common pool database which includes a plurality of content data, with each piece of content having at least one author associated with it. The computer program further includes a code segment that maintains a user database which includes user trust data. The user trust data includes user Trust Levels of authors of content included in the common pool database. Finally, the computer program includes a code segment that generates a content database and content presentation structure for a user based on the user trust data of the user.

In another embodiment, the invention relates to a method for organizing a listing of performances for a user. The method comprises maintaining a common pool database which includes a plurality of performance data for television/cable shows, with each piece of performance data having at least one author, such as a writer or director, associated with it. The method further includes maintaining a user database which includes user trust data. The user trust data includes user Trust Levels for authors of performance data included in the common pool database. Next, a new performance database and performance listing presentation structure are generated for a user based on the user trust data of the user. In this manner, users are able to easily determine performances they are likely to enjoy.

Advantageously, the use of user Trust Levels for authors allows the presentation of content to be structured to specifically suit a particular individual. Content from highly trusted authors may be placed in more prominent positions in the presentation data structure. Furthermore, chat room environments may be structured to simulate the actual experience of having a conversation with friends in a crowded room. Moreover, the use of Trust Levels allows an email presentation to be structured to allow messages from highly

trusted individuals to take precedence over messages from lower trusted individuals. These and other advantages of the present invention will become apparent upon reading the following detailed descriptions and studying the various figures of the drawings.

## 5 BRIEF DESCRIPTION OF THE DRAWINGS

The invention, together with further advantages thereof, may best be understood by reference to the following description taken in conjunction with the accompanying drawings in which:

Figure 1 is a chart illustrating components included in the Trust model according  
10 to one embodiment of the present invention;

Figure 2 is a chart showing various ways Trust Levels may be created in accordance with another embodiment of the present invention;

Figure 3 is a flowchart showing a method for creation of a Trust Level using explicit declaration by a user, in accordance with yet another embodiment of the present  
15 invention;

Figure 4 is a flowchart showing a method for creation of a Trust Level based on a user making evaluations of content from an author, in accordance with one aspect of the present invention;

Figure 5 is a flowchart showing a method for creation of a Trust Level based on transitive assignment with decay, in accordance with another aspect of the present  
20 invention;

Figure 6 is a flowchart showing a method for creation of a Trust Level based on observing commonalties in patterns between two or more users, in accordance with another aspect of the present invention;

Figure 7 is a flowchart showing a method for creation of a Trust Level based on membership in a group, in accordance with yet another aspect of the present invention;

Figure 8 is a diagram showing the flow of Trust information, in accordance with one embodiment of the present invention;

Figure 9 is a flowchart showing a method for organizing a pool of content for a  
30 user, according to another embodiment of the present invention;

Figure 10 is an illustration showing a common pool default data structure restructured for a user based on the user's Webs of Trust data, in accordance with another embodiment of the present invention;

Figure 11 is an illustration showing a content presentation structured based on a user's Webs of Trust, in accordance with yet another embodiment of the present invention;

Figure 12 is an illustration showing the use of Webs of Trust for a chat room, in accordance with another embodiment of the present invention; and

Figure 13 is an illustration showing a distributed computing system for organizing content data based on Trust relationships, in accordance with another aspect of the present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

An invention is described for organizing content based on a user's trust level for specific authors. This content may be anything created by an author, and includes, for example, books, articles, art, and/or web pages. In the following description, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be obvious, however, to one skilled in the art that the present invention may be practiced without some or all of these specific details. In other instances, well known process steps have not been described in detail in order not to unnecessarily obscure the present invention.

In accordance with one aspect of the present invention, the aforementioned problem of individualized trust based content organization is addressed by the use of a "Trust" level model. Trust level, as used in the present application, is a way of ranking the confidence level a user has for a specific author in relation to a specific topic.

Figure 1 is a chart illustrating components included in a preferred trust model of the present invention. As shown in Figure 1, the relationship between a user 2 and an author 4 is based on a Trust Level 10. The Trust Level 10 includes a Topic Relevancy 12 and Confidence Levels 14. Topic Relevancy 12 includes at least one topic 16, while the Confidence Levels 14 include a number of confidence levels 18 associated with the topics 16. In this manner, each topic 16 has a related confidence level 18 which indicates the confidence the user 2 has for the author 4 in relation to a particular topic 16.

The present invention allows the Trust Level 10 a user 2 has for a particular author 4 to be utilized for organizing and ranking content generated by the author 4. Moreover, different topics 16 may generate different Trust Levels 10 between a user 2 and an author 4. For example, a user may have a very high Trust Level 10 for a specific author in relation to automobiles, and a very low Trust Level 10 for the author in relation to scuba diving. The Trust model of the present invention reflects this by assigning specific confidence levels 18 to specific related topics 16. The collection of Trust Levels 10 a user 2 has for various authors 4 is called the user's "Webs of Trust." Thus, by utilizing a user's 2 Webs of Trust, content may be organized to provide content to a user ranked according to the user's trust for various authors, as will be described in more detail below.

Figure 2 is a chart showing various ways Trust Levels may be created, in accordance with another embodiment of the present invention. These include Explicit Declaration By the User 100, Content Evaluations 200, Transitive Assignment 300, Commonalties 400, and Group Membership 500. By using these methods, collectively and/or individually, Webs of Trust may be created for a particular user based on the users selections, actions, and the actions of selected other users. Each of these methods will now be described with reference to Figures 3-7.

Figure 3 is a flowchart showing a method 100 for creation of a Trust Level using explicit declaration by a user, in accordance with one aspect of the present invention. The method 100 begins with a start operation 102, wherein various predeclaration operations take place. These operations may include creation of a user database, user login, and other operations as will be obvious to those skilled in the art.

In an interface operation 104, a user input interface is proved to the user. The input interface is preferably designed to allow the user to input information concerning the amount of confidence the user has for an author. Thus confidence may be a general confidence, i.e., concerning all topics, a particular topic, or a group of topics. Furthermore, either the topic, the author, or both may be entered explicitly, or may be inferred from the context in which the user input is obtained. For example, while examining a specific piece of content, the user may explicitly input confidence for the author. The identity of the author could be inferred from the context, i.e., the author of the content. In addition, the related topic may also be inferred from the content topic.



Next, in a receive data operation 106, the information entered by the user is received. This information is then used to update a user database in an update operation 108. The update operation 108 includes updating user trust data included in the user database.

5        Finally, in operation 110, the user trust data can be used to organize content ranked according to the user's trust for various authors.

Figure 4 is a flowchart showing a Method 200 for creation of a Trust Level based on a user making evaluations of content generated by an author, in accordance with another aspect of the present invention. In an initial operation 202, various preevaluation  
10        operations take place. These operations include creation of a user database, creation of a content pool, and other operations as will be obvious to those skilled in the art.

In an input operation 204, a user input interface is Provided for content evaluation. The input interface is preferably desired to allow the user to input information concerning the users evaluation of selected content. The content may be selected by the user, or  
15        inferred from the context in which: the user input is obtained. For example, when a user is examining a particular piece of content, the selected content may be erred to be the content currently being examined. Then, in a receive operation 206, the information entered by the user is received.

Next, in a Trust Level determination operation 208, the Trust Level for an author  
20        associated with the selected content is determined. Operation 208 includes first determining an associated author for the selected content. Since an associated author is typically listed with evaluated content, the author can generally be determined by looking up the author listed in the selected content. Second, a Trust Level for the author is determined by determining a topic associated with the content and a confidence level based  
25        on the evaluation of the content. As above, the topic associated with the content can be inferred from the context of the content. The evaluation of the content is then used to determine a confidence level for the associated author in relation to the determined topic, the better the evaluation of the content, the higher the related confidence level for the author.

30        This information is then used to update a user database in an update operation 210. The update operation 210 includes updating user trust data included in the user database.

Finally, in operation 212, the user trust data can be used to organize content ranked according to the user's trust for various authors.

Figure 5 is a flowchart showing a method 300 for creation of a Trust Level based on transitive assignment with decay, in accordance with another aspect of the present invention. In an initial operation 302, various pre-declaration operations take place. These operations include author and content evaluations from other users, and other operations as will be obvious to those skilled in the art.

In an input operation 304, a user input interface is provided to a first user. The input interface is preferably designed to allow the first user to input information concerning the Trust Level the user has for a second user. This Trust Level may be a general confidence concerning all topics, a particular topic, or a group of topics. By entering a Trust level for a second user, the first user is declaring trust for the second user.

In a first Trust Level operation 306, the first user's Trust Levels are determined for authors trusted by the second user. Generally, all authors trusted by the second user are then trusted by the first user. The Trust Levels for each of these authors is based on both the Trust Level the second user has for that author, and on the Trust Level the first user has for the second user. Preferably, these Trust Levels are decayed, resulting in the first user's Trust Levels for the authors being less than that of the second user's Trust Levels for the authors.

Next, in a subsequent Trust Level operation 308, the first user's Trust Levels are determined for authors trusted by a third user trusted by the second user. Similar to the first Trust Level operation 306, generally all authors trusted by the third user are then trusted by the first user. The Trust Levels for each of these authors is based on: a) the Trust Level the third user has for that author, b) the Trust Level the second user has for the third user, and c) the Trust Level the first user has for the second user. Preferably, these Trust Levels are decayed, resulting in the first user's Trust Levels for the authors being less than that of the second user's Trust Levels for the authors, which, in turn, is less than that of the third user's trust for the authors. Operation 308 is carried out for each user the second user trusts. Furthermore, operation 308 is repeated for each of these further removed users as well, and for users they trust, and so on.

Finally, in operation 310, the user trust data can be used to organize content ranked according to the user's trust for the various authors. Method 300 simulates word of mouth

trust in the real world, when one friend tells another friend, and so on. With each person removed from the current user, the Trust Level lessens, representing higher trust for those close to the user, and lesser trust for those not close to the user. Furthermore, method 300 illustrates one method for updating a user's Webs of Trust through the actions of others, i.e., when others alter their Trust Levels, the Trust Levels of the current user can be altered.

Turning next to Figure 6, a method 400 for creation of a Trust Level based on observing commonalties in patterns between two or more users is shown, in accordance with yet another aspect of the present invention. In an initial operation 402, various pre-evaluation operations take place. These operations include author and content evaluations from other users, and other operations as will be obvious to those skilled in the art.

In an input operation 404, a user input interface is provided for content evaluation. The input interface is preferably designed to allow a first user to input information concerning the first users evaluation of selected content. The content may be selected by the first user, or inferred from the context in which the user input is obtained. For example, when a user is examining a particular piece of content, the selected content may be inferred to be the content currently being examined.

In a compare operation 406, the user content evaluations obtained from step 404 and from previous content evaluations by the first user, are compared to content evaluations from a second user.

Next, in a selecting operation 408, the second user is flagged if a predetermined threshold number of commonalties exist between the first user content evaluations and the second user content evaluations. A selected second user represents a user in which the first user is likely to share points of view with, and the two are likely to trust the same individuals.

In a Trust determination operation 410, a Trust Levels for authors trusted by second user are determined for the first user. Generally, authors trusted by the second user are then trusted by the first user. Preferably, these Trust Levels are decayed, resulting in the first user's Trust Levels for the authors being less than that of the second user's Trust Levels for the authors. Furthermore, this operation may be combined with method 300, and further Trust Levels determined by transitive assignment with decay.

Finally, in operation 412, the user trust data can be used to organize content ranked according to the user's trust for the various authors.

Figure 7 is a flowchart showing a method 500 for creation of a Trust Level based on membership in a group, in accordance with another aspect of the present invention. In an initial operation 502, various pre-declaration operations take place. These operations include author and content evaluations from other groups, and other operations as will be obvious to those skilled in the art.

In an input operation 504, a user input interface is provided to a first user. The input interface is preferably designed to allow the user to input information concerning the Trust Level the user has for a group. This Trust Level may be a general confidence concerning all topics, a particular topic, or a group of topics. By entering a Trust level for a group, the user is declaring trust for the group.

In a Trust Level determination operation 506, the user's Trust Levels are determined for authors trusted by the group. Generally, all authors trusted by the group are then trusted by the user. The Trust Levels for each of these authors is based on both the Trust Level the group has for that author, and on the Trust Level the user has for the group. Preferably, these Trust Levels are decayed, resulting in the user's Trust Levels for the authors being less than that of the group's Trust Levels for the authors.

Finally, in operation 508, the user trust data can be used to organize content ranked according to the user's trust for the various authors. Method 500 simulates a user's similar points of view as that of the groups to which the user belongs. Furthermore, since the present invention typically treats groups like individual entities, methods 100-400 may generally use a group as one of the users.

Referring next to Figure 8, a diagram showing the flow of Trust information is shown, in accordance with one embodiment of the present invention. As the diagram shows, the present invention includes a common pool database 50 and a user database 52. The common pool database 50 includes a plurality of content data 54, each associated with at least one author 55. The content data 54 may include the actual authored data, such as an article, or a link to the authored data, such as a URL, post address, or any other means to enable contact with the authored content. For example, content data 54 may represent physical paintings by an artist (author). In this case, the actual content data 54 may include a digital picture of the art, a URL to where the art may be ordered, or a post address to order the piece of art.

The user database 52 includes a plurality of user trust data 56. Each user trust data 56 includes Trust Levels associated with an individual user. The Trust Levels include Trust Levels for authors 58, and Trust Levels for other users or groups 60. Trust information, in the form of Explicit Declarations 100, Content Evaluations 200, Transitive Assignment 300, Commonalties 400, and Group Membership 500, flows into a user database 52. The Trust information is then used to create the various Trust Levels 58 and 60, as explained above with reference to Figures 2-7. The Trust Levels for an individual user are then used to generate a content database and content presentation structure for a the user, as described below.

Figure 9 is a flowchart showing a method 600 for organizing a pool of content for a user, according to one embodiment of the present invention. In an initial operation 602, system initialization operations are performed, such as generating a content pool database, generating a user database, and other initial operations that will be obvious to those skilled in the art.

In a contribution operation 604, contributors transmit content into a common pool database. Preferably all content transmitted to the common pool database includes at least one associated author who generated the content. Authors include, but are not limited to, literary authors, artists, groups, and corporations.

Next, in operation 606, the content stored in the common pool database is structured according to a default data structure. This can be any data structure suitable for storing the particular type of content in the common pool database. For example, in the case of a chat database, content may be stored as a list based on temporal priority. In the case an article database, content may be stored in a hierarchical tree based on topics. The appropriate default data structure for a particular data type will be obvious to those skilled in the art.

In a content structuring operation 608, a content database is generated from the content in the common pool. The content database is structured specifically for the user based on the user trust data of the user. Preferably, content generated by an author having a high Trust Level with respect to the user is ranked higher in the data structure than content generated by an author having a lower Trust Level with respect to the user. For example, when organizing a content database of articles, articles generated by authors having a high Trust Level with respect to the user may be listed before other articles.

Finally, in operation 610, the user may utilize the structured content presentation to obtained needed information. Since the content presentation is structured such that content from trusted authors takes precedence over other content, the user can easily find and utilize desired information, as illustrated further in Figures 10-12.

5        Figure 10 is an illustration showing a common pool default data structure restructured for a user based on the user's Webs of Trust data, in accordance with another embodiment of the present invention. One example of a common pool default data structure is a hierarchical tree 70 of nodes 72 and directories 74. In this example each node 72 represents a link to an article, however, in other embodiments nodes 72 can represent  
10 anything enabling a user to obtain information from an author, as described above. In addition, each directory 74 contains links to other, more topic specific directories and nodes. For example, a cars directory may contain links to general articles and directories on cars. One of these directories may be "Corvettes" and lead to articles and directories on the more specific car topic "Corvettes." Continuing with the example, the Corvettes  
15 directory may lead to a "Convertible Corvettes" directory, which in turn, may lead to an article on "1998" convertible Corvettes.

Using Webs of Trust for a specific user, the present invention may restructure the default common pool data structure 70 into a new content database structure 76 to more particularly suit the user. For example, if a particular user had a high Trust Level for the  
20 author of the article on "1998 Convertible Corvettes" 78, that article 78 may be placed in a higher level in the content database structure 76, for example, at the level of articles on general Corvettes.

Figure 11 is an illustration showing a content presentation structured based on a user's Webs of Trust, in accordance with yet another embodiment of the present invention.  
25 A default content presentation 80, based on the default common pool data structure, includes a presentation of nodes 72 at a particular level of the hierarchical tree, in this case the "Corvette" level. As is shown, the nodes 72 concern general information on Corvettes.

As described above, using the Using Webs of Trust for a specific user, the present invention may restructure the default common pool data structure 70 into a new content  
30 database structure 76 to more particularly suit the user. A new content presentation 82, based on a new content database structure, includes a presentation of nodes 72 as in the default content presentation 80. However, as in Figure 10, if the user has a high Trust

Level for the author of the article on "1998 Convertible Corvettes" 78, that article 78 may be placed in a higher level in the content presentation structure 82, for example, at the level of articles on general Corvettes.

Referring next to Figure 12, an illustration showing the use of Webs of Trust for a chat room is shown, in accordance with one aspect of the present invention. In a standard chat environment 90, messages received from others in the chat room are all listed for the user, generally, in reverse temporal order, with the newer messages above older messages. Thus, if a chat user has friends 92, messages from the friends 92 will be interlaced with messages from strangers 94, depending on the temporal order in which the messages are received.

In a chat environment based on Webs of Trust 96, messages may be listed in an order based on the user's Webs of Trust. For example, if the user sets high Trust Levels for their friends 92, messages from the friends 92 will be listed before messages from strangers 94. Messages from individuals at the same Trust Level typically are listed in reverse temporal order, as in a standard chat environment. Furthermore, a Webs of Trust chat environment is preferably designed such that Trust Level constraints are relaxed over time when no trusted individuals are transmitting messages. In this manner, the Webs of Trust chat environment represents a group of friends talking in a crowded room. As long as someone in the group is talking the other group members hear that person above all others. When no one in the group is talking, group members will start over hearing other conversations.

Figure 13 is an illustration showing a distributed computing system 1300 for organizing content data based on Trust relationships, in accordance with another aspect of the present invention. The distributed computing system 1300 includes a server 1302, client users 1304, and a network 1306, such as the Internet. The server 1302 includes a content database 1308, a system process 1310, and a user database 1312. The content database 1308 includes submitted content wherein each piece of content includes at least one author. The content database 1308 is coupled to the system process 1310 which includes the logic for creating and updating Webs of Trust for users. The system process 1310 also includes logic for generating content databases and content presentation structures for users. Also coupled to the system process 1310 is the user database 1312.

The user database 1312 includes user trust information, which is utilized by the system process 1312 to generate content databases and content presentation structures for users.

In use, a user 1304 can connect with the server 1302 through the network 1306. This is typically accomplished using a browser and the Internet. Once a connection is established, the user can request information from the system process 1310. The system process 1310 then utilizes the content database 1308 in conjunction with the user database 1312 to generate new content database particularly structured for the individual user 1304. In this manner, a content presentation for user 1 may be completely different from a content presentation for user 2, even though each user requested the same information. Because user 1 and/or 2 may have different Trust Levels for different authors, the content presented to each user may take a different form. In one embodiment of the present invention, the same request from different users will generate the same pool of content, however, the pool of content will be structured differently for each user based on the users Webs of Trust.

It should be noted that the Webs of Trust model of the present invention may be used to organize any type data needed by a user. Examples include, but are not limited to, email, search results, marketing, chat rooms, e-commerce listings, and television/cable/satellite performance listings. For example, the Webs of Trust model may be utilized to organize scheduled television/cable performances listings. In this case, a Webs of Trust based performance listing may list performances by the most trusted authors before other performance listings.

While this invention has been described in terms of several preferred embodiments, there are many alterations, permutations, and equivalents which fall within the scope of this invention. It should also be noted that there are many alternative ways of implementing the methods and apparatuses of the present invention. It is therefore intended that the following appended claims be interpreted as including all such alterations, permutations, and equivalents as fall within the true spirit and scope of the present invention



**WHAT IS CLAIMED IS:**

- 1           1. A computer implemented method for organizing a pool of content for a user, the  
2 method suitable for use in a distributed computing environment, the method comprising  
3 the acts of:  
4           maintaining a common pool database including a plurality of content data, wherein  
5           each content data includes at least one associated author of the content;  
6           maintaining a user database including at least one user trust data, wherein each user  
7           trust data is associated with a user, and wherein each user trust data includes  
8           a user trust level for at least one of the authors of content; and  
9           generating a content database and content presentation structure for a user based on  
10          the user trust data for the user
- 1           2. A computer implemented method as recited in claim 1, further comprising the  
2 act of determining a user trust level for an author based on a rating the user assigns to the  
3 author.
- 1           3. A computer implemented method as recited in claim 1, further comprising the  
2 act of determining a user trust level for an author based on a rating the user assigns to  
3 content data associated with the author.
- 1           4. A computer implemented method as recited in claim 1, further comprising the  
2 act of determining a first user trust level associated with a first user and an author based on  
3 a second user trust level a second user has for the author and a trust level the first user has  
4 for the second user.
- 1           5. A computer implemented method as recited in claim 1, further comprising the  
2 act of determining a first user trust level associated with a first user and an author based on  
3 commonalities between the first user and a second user.

1           6. A computer implemented method as recited in claim 1, further comprising the  
2 act of determining a user trust level associated with a first user and an author based on the  
3 group membership of the user.

1           7. A computer implemented method as recited in claim 1, wherein the user is a  
2 group entity.

1           8. A computer implemented method as recited in claim 1, wherein the content  
2 presentation structure concerns articles evaluating of products.

1           9. A computer implemented method as recited in claim 1, wherein the content  
2 presentation structure concerns a chat environment.

1           10. A computer implemented method as recited in claim 1, wherein the content  
2 presentation structure concerns search results.

1           11. A computer implemented method as recited in claim 1, wherein the content  
2 presentation structure concerns a email.

1           12. A distributed computing system for organizing a pool of content for a user, the  
2 system comprising:  
3           a common pool database including a plurality of content data, wherein each content  
4           data includes at least one associated author of the content;  
5           a user database including at least one user trust data, wherein each user trust  
6           data is associated with a user, and wherein each user trust data includes a  
7           user trust level for at least one of the authors of content; and  
8           a system process having logic for generating a content database and content  
9           presentation structure for a user based on the user trust data for the user.

1           13. A distributed computing system as recited in claim 12, wherein the system  
2 process further includes logic for determining a user trust level for an author based on a  
3 rating the user assigns to the author.

1           14. A distributed computing system as recited in claim 12, wherein the system  
2 process further includes logic for determining a user trust level for an author based on a  
3 rating the user assigns to content data associated with the author.

1           15. A distributed computing system as recited in claim 12, wherein the system  
2 process further includes logic for determining a first user trust level associated with a first  
3 user and an author based on a second user trust level a second user has for the author and a  
4 trust level the first user has for the second user.

1           16. A distributed computing system as recited in claim 12, wherein the system  
2 process further includes logic for determining a first user trust level associated with a first  
3 user and an author based on commonalties between the first user and a second user.

1           17. A distributed computing system as recited in claim 12, wherein the system  
2 process further includes logic for determining a user trust level associated with a first user  
3 and an author based on the group membership of the user.

1           18. A distributed computing system as recited in claim 12, wherein the user is a  
2 group entity.

1           19. A distributed computing system as recited in claim 12, wherein the content  
2 presentation structure concerns articles evaluating of products.

1           20. A distributed computing system as recited in claim 12, wherein the content  
2 presentation structure concerns a chat environment.

1           21. A distributed computing system as recited in claim 12, wherein the content  
2 presentation structure concerns search results.

1           22. A distributed computing system as recited in claim 12, wherein the content  
2 presentation structure concerns a email.

1           23. A computer program embodied on a computer readable medium for organizing  
2 a pool of content for a user, the computer program suitable for use in a distributed  
3 computing environment, the computer program comprising:

4           a code segment that maintains a common pool database including a plurality of  
5           content data, wherein each content data includes at least one associated  
6           author of the content;  
7           a code segment that maintains a user database including at least one user trust data,  
8           wherein each user trust data is associated with a user, and wherein each user  
9           trust data includes a user trust level for at least one of the authors of content;  
10          and,  
11          a code segment that generates a content database and content presentation structure  
12          for a user based on the user trust data for the user.

1           24. A computer program as recited in claim 23, further comprising a code segment  
2 that determines a user trust level for an author based on a rating the user assigns to the  
3 author.

1           25. A computer program as recited in claim 23, further comprising a code segment  
2 that determines a user trust level for an author based on a rating the user assigns to content  
3 data associated with the author.

1           26. A computer program as recited in claim 23, further comprising a code segment  
2 that determines a first user trust level associated with a first user and an author based on a  
3 second user trust level a second user has for the author and a trust level the first user has  
4 for the second user.

1           27. A computer program as recited in claim 23, further comprising a code segment  
2 that determines a first user trust level associated with a first user and an author based on  
3 commonalties between the first user and a second user.

1           28. A computer program as recited in claim 23, further comprising a code segment  
2           that determines a user trust level associated with a first user and an author based on the  
3           group membership of the user.

1           29. A computer program as recited in claim 23, wherein the user is a group entity.

1           30. A computer program as recited in claim 23, wherein the content presentation  
2           structure concerns articles evaluating of products.

1           31. A computer program as recited in claim 23, wherein the content presentation  
2           structure concerns a chat environment.

1           32. A computer program as recited in claim 23, wherein the content presentation  
2           structure concerns search results.

1           33. A computer program as recited in claim 23, wherein the content presentation  
2           structure concerns an email.

1           34. A method for organizing a listing of performances for a user, the method  
2           suitable for use in a visual communication environment, the method comprising the acts of:  
3           maintaining a common pool database including a plurality of performance data,  
4                        wherein each performance data includes at least one associated author of the  
5                        performance;  
6           maintaining a user database including at least one user trust data, wherein each user  
7                        trust data is associated with a user, and wherein each user trust data includes  
8                        a user trust level for at least one of the authors of performance data; and  
9           generating a performance database and performance listing presentation structure  
10                      for a user based on the user trust data for the user, whereby the user may  
11                      easily determine performances the user is likely to enjoy.

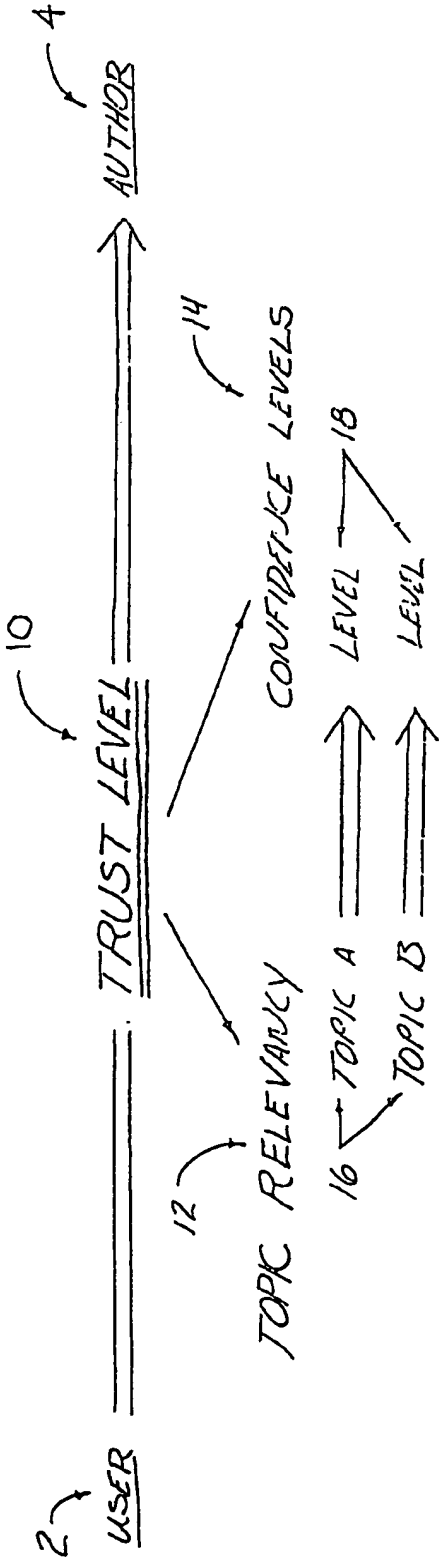
1           35. A method as recited in claim 34, further comprising the act of recording  
2           performances chosen based on the performance listing presentation structure.

1           36. A method as recited in claim 34, wherein the performance data includes  
2 television show listings.

1           37. A method as recited in claim 34, wherein the performance data includes cable  
2 performance listings.

1           38. A method as recited in claim 34, wherein the performance data includes  
2 satellite performance listings.

1           39. A method as recited in claim 1 wherein each user trust data further includes at  
2 least one qualification of the area of trust.

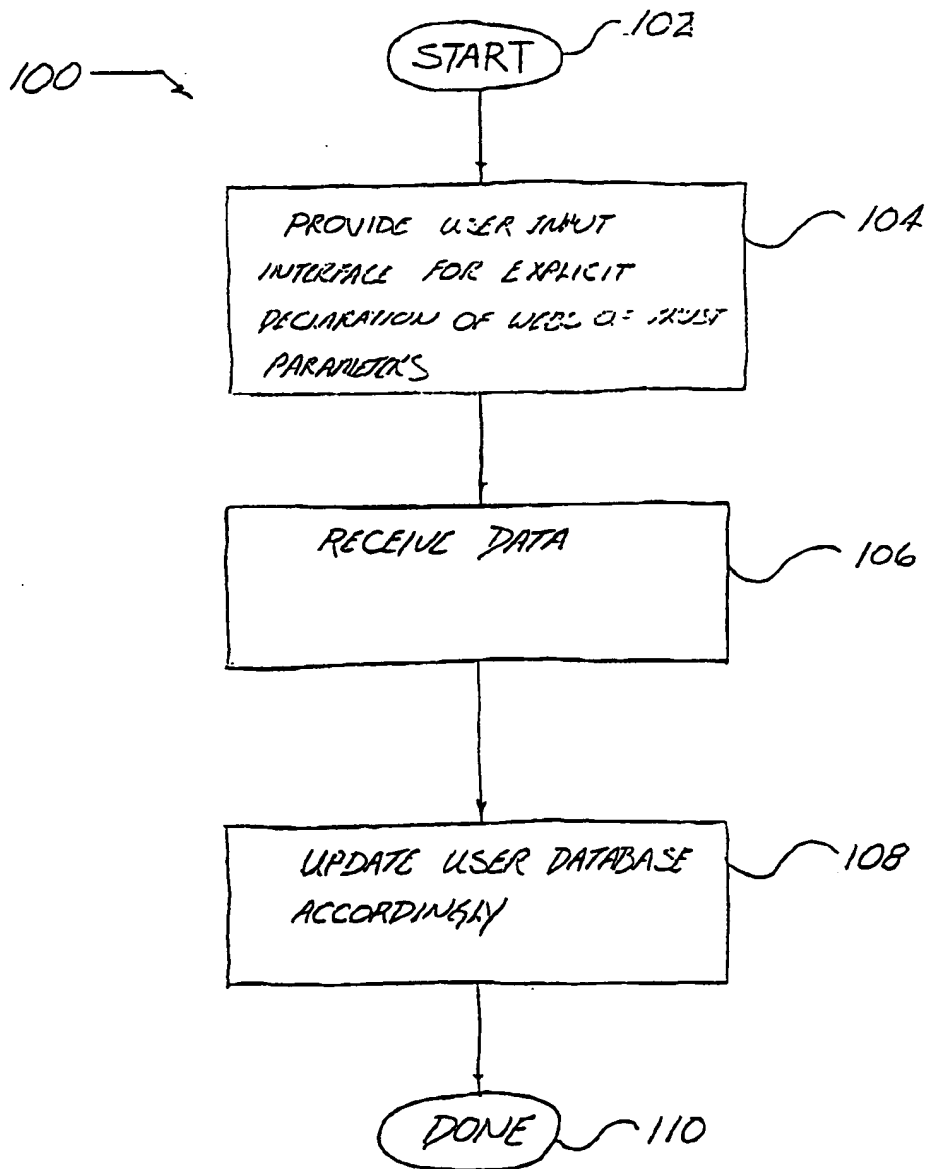


CREATION OF WEBS OF TRUST

- 1) EXPLICIT DECLARATION BY USER (TRUSTER) 100
- 2) BASED ON USER MAKING EVALUATIONS OF  
CONTENT FROM CONTRIBUTOR (TRUSTEE) 200
- 3) TRANSITIVE ASSIGNMENT WITH DECAY 300
- 4) BASED ON SYSTEM OBSERVING COMMONALITIES  
IN PATTERNS BETWEEN 2 OR MORE USERS 400
- 5) BASED ON MEMBERSHIP IN A GROUP 500

FIG. 7



Fig. 3

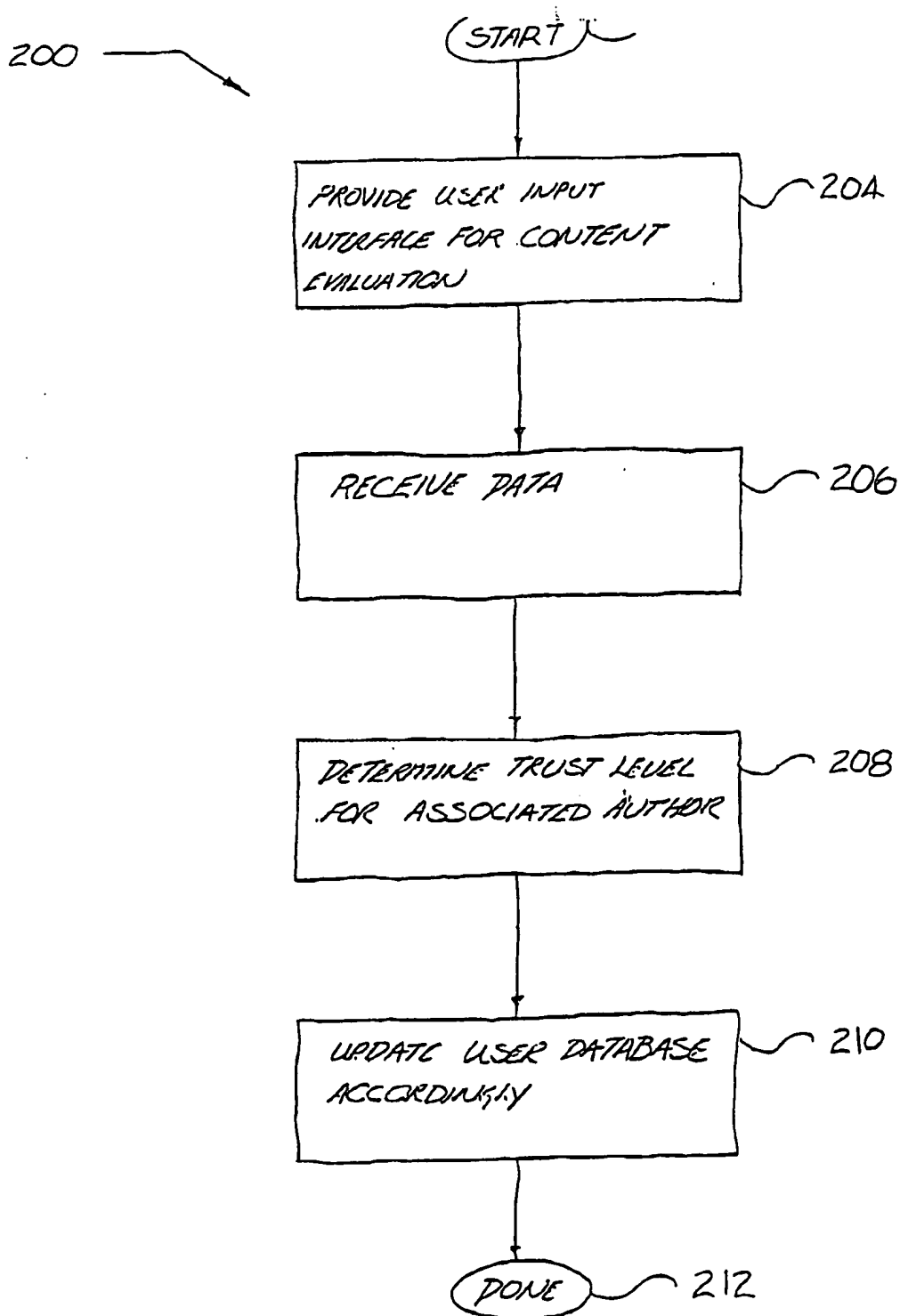


Fig. 4

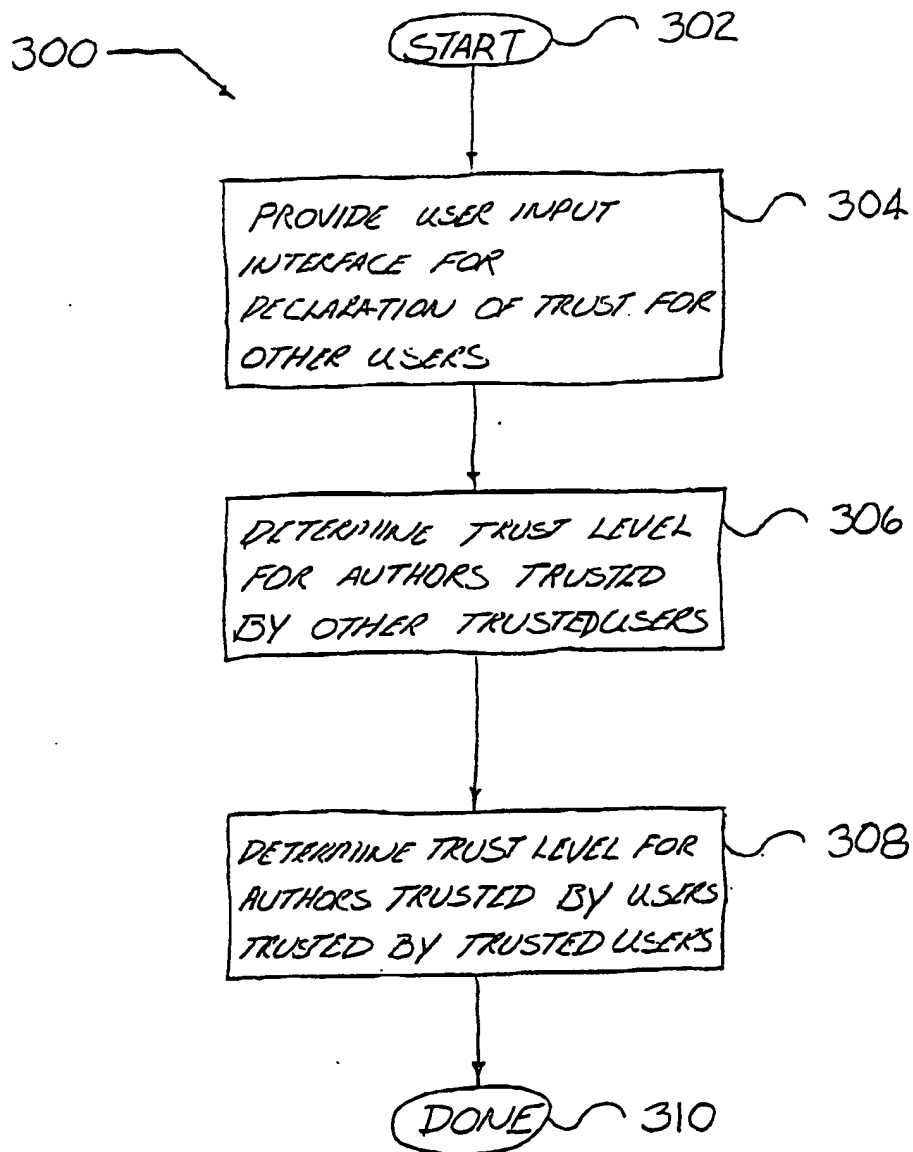


Fig. 5

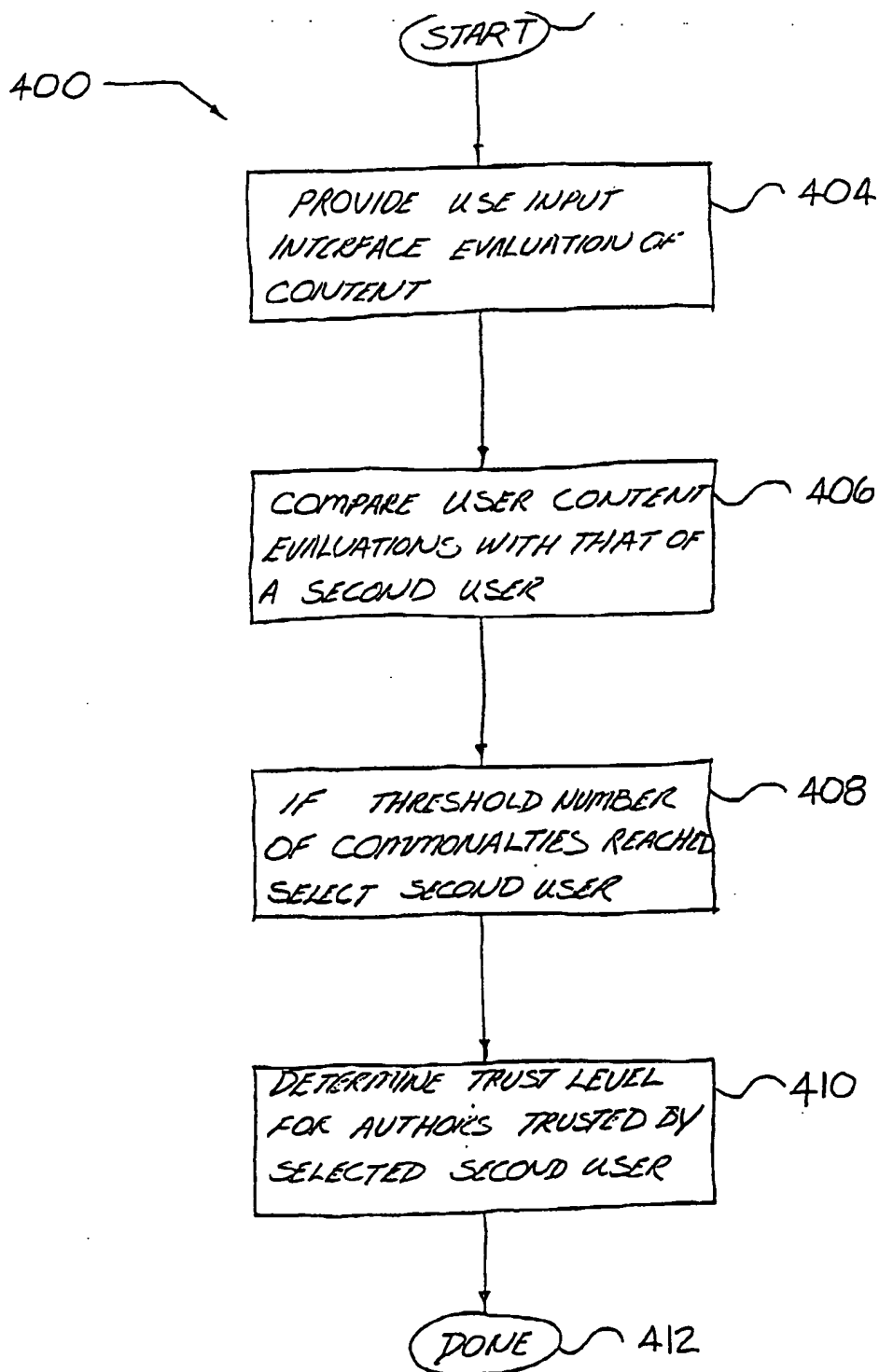


FIG. 6

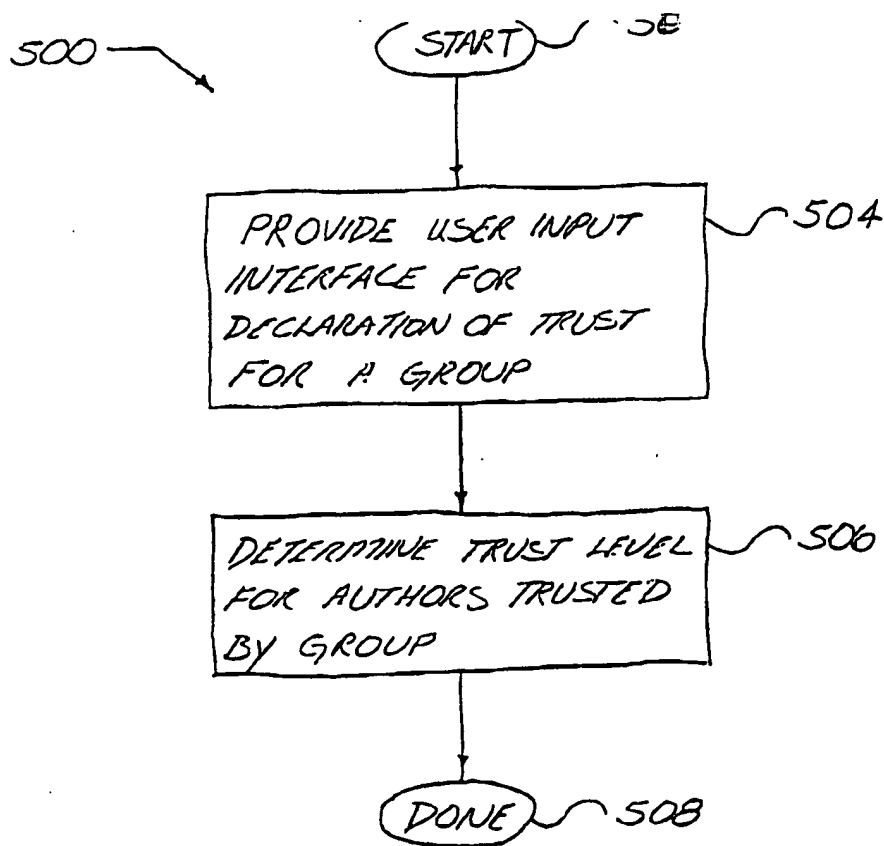


Fig. 7

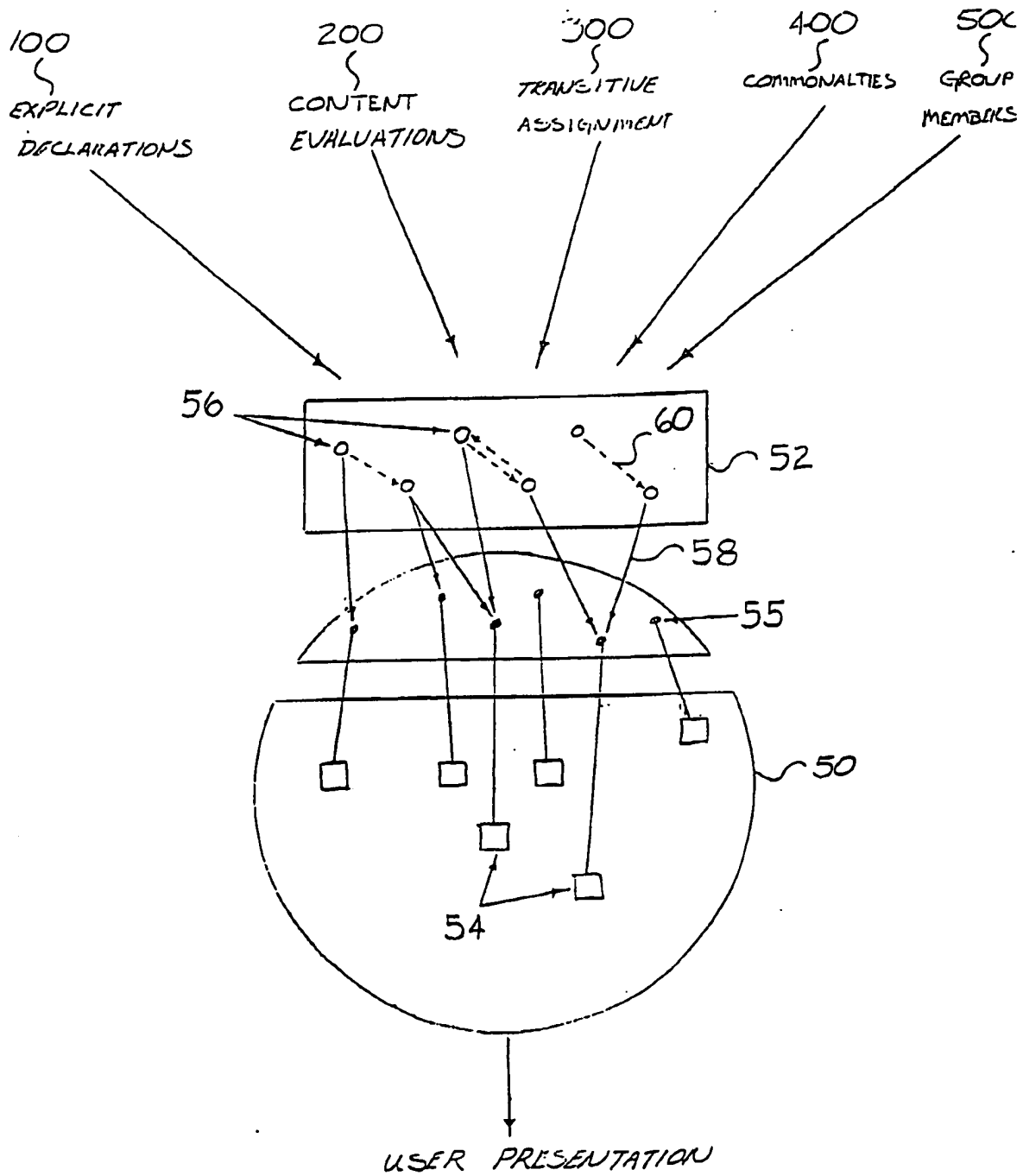


Fig. 8

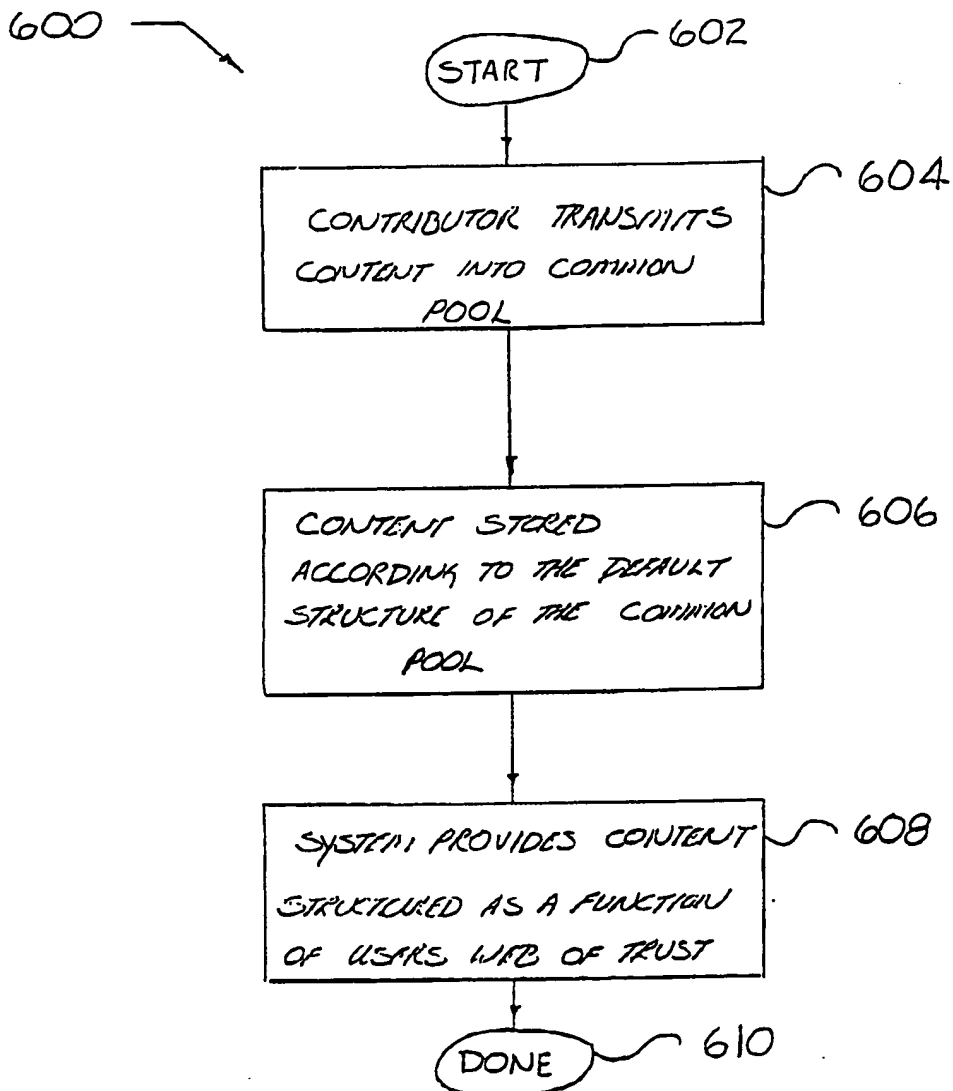


Fig 9

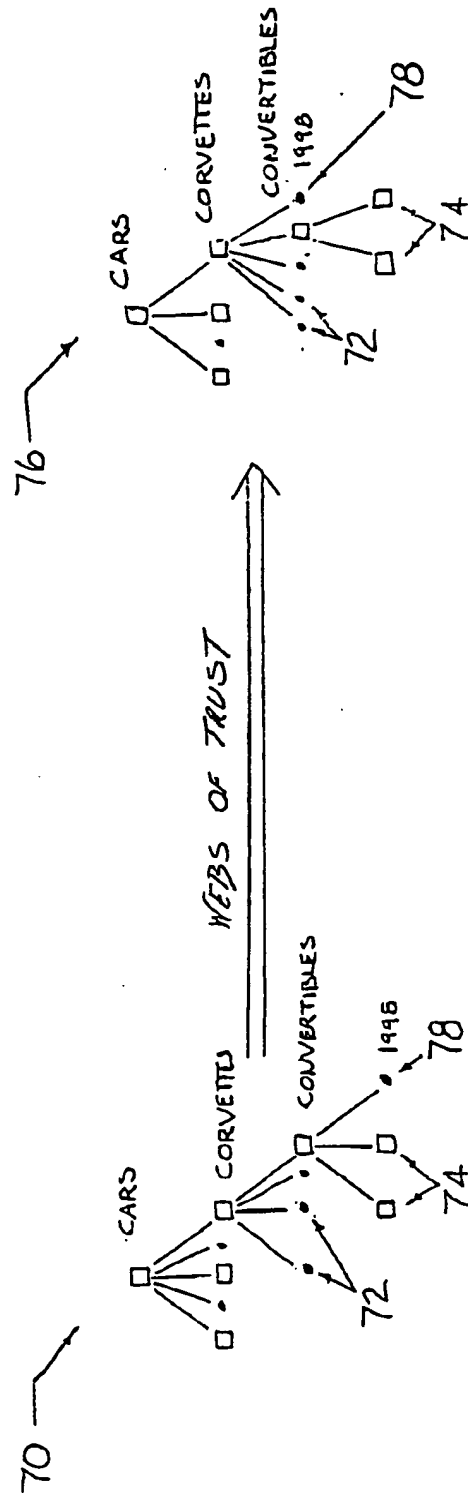


Fig 10



DEFAULT STRUCTURED  
PRESENTATION

SMITH, "REMOVABLE HARDTOP 'VETTES"  
KAY, "CORVETTE REPAIR"  
JOHNSON, "THE CONVERTIBLE CORVETTE"

72

SMITH, "REMOVABLE HARDTOP 'VETTES"  
KAY, "CORVETTE REPAIR"  
JOHNSON, "THE CONVERTIBLE CORVETTE"

WEBS OF TRUST  
PRESENTATION

GUHA, "1998 CONVERTIBLE CORVETTES"  
SMITH, "REMOVABLE HARDTOP VETTES"  
KAY, "CORVETTE REPAIR"  
JOHNSON, "THE CONVERTIBLE CORVETTE"

78

72

82

80

Fig 11

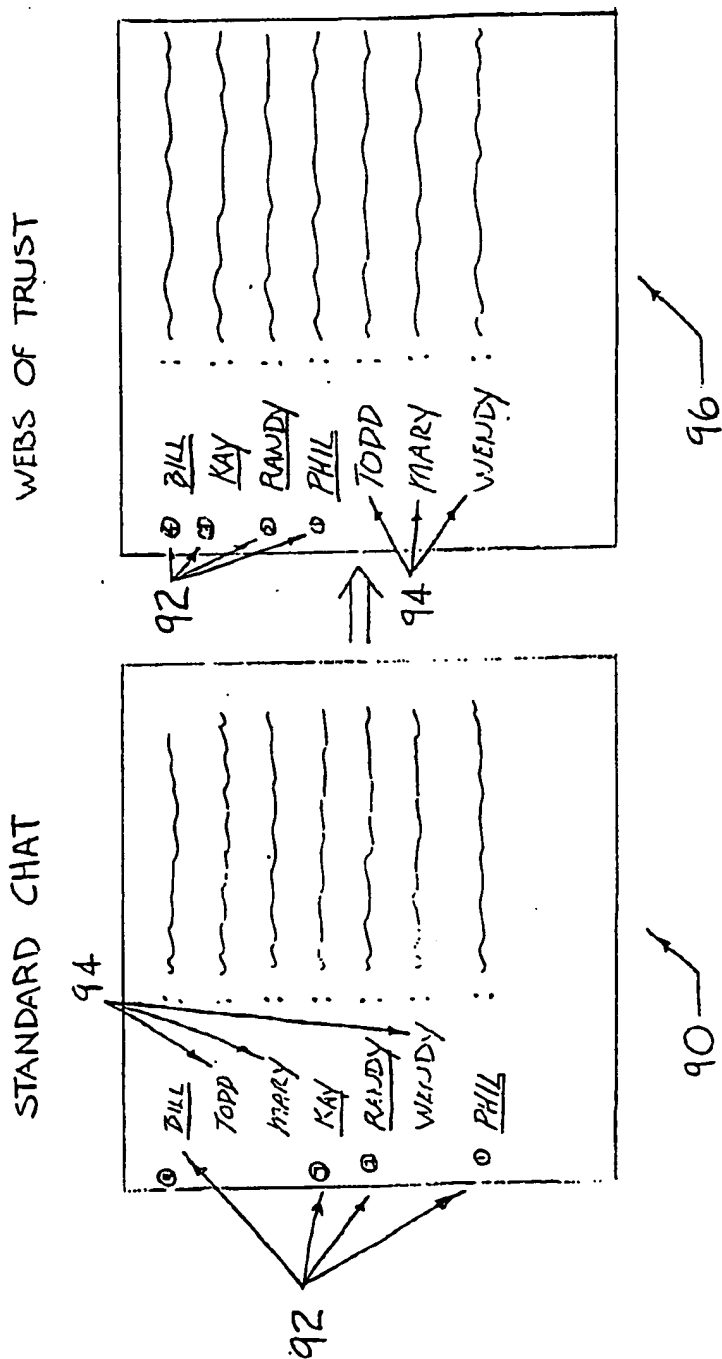


Fig 12

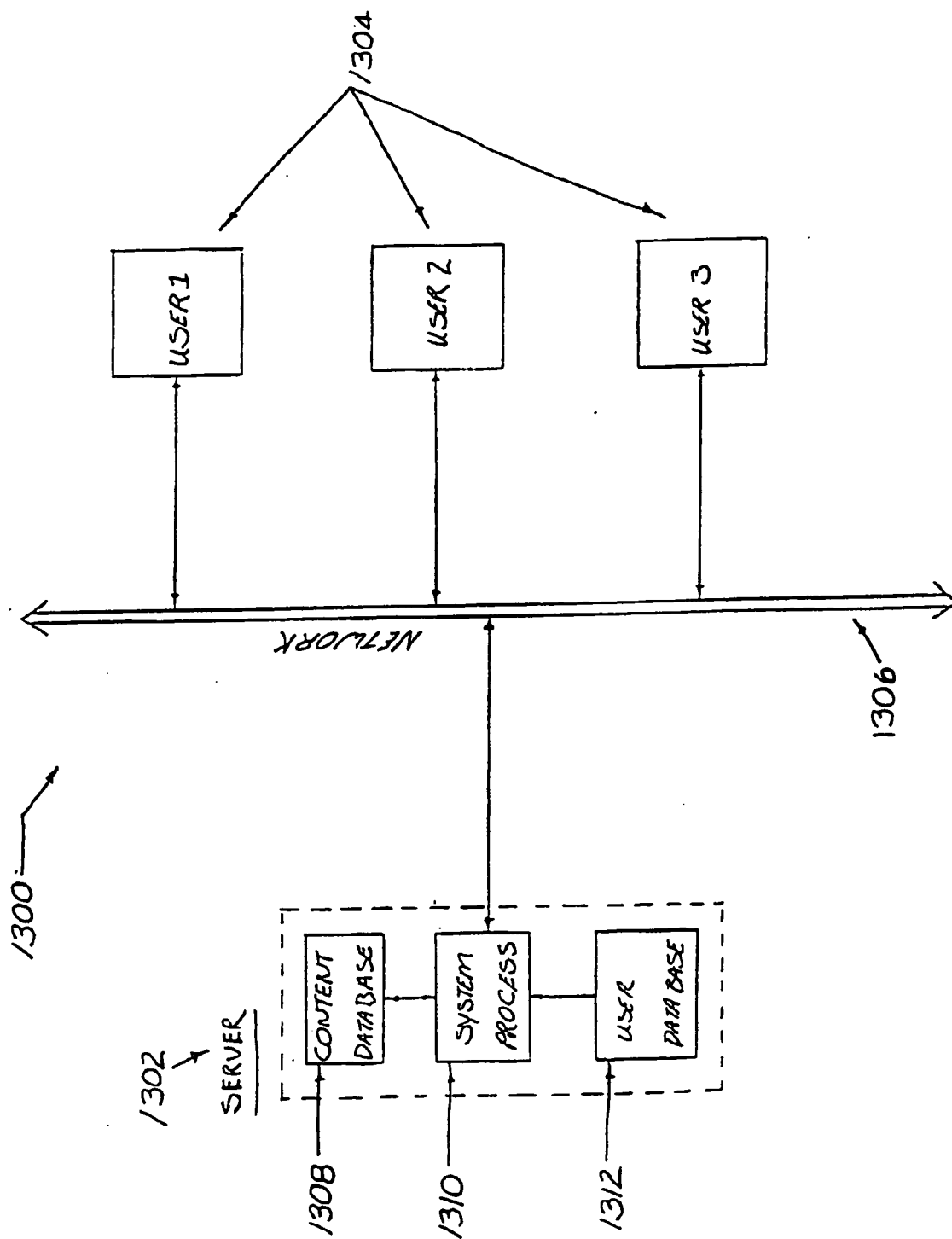


Fig 13